

CLAIMS

1. A drive system for an imaging device of the type having a curved arm, comprising:

a carrier that engages and supports the curved arm such that the curved arm can be moved along the carrier;

a belt extending through said carrier and secured about the periphery of the curved arm; and

a driving system comprising

a motor,

a drive shaft rotatably driven by said motor,

a drive pulley coupleable to said drive shaft through a clutch mechanism, said pulley engaging said belt such that rotation of said drive pulley effects movement of said belt and in turn movement of the curved arm relative to said carrier, said clutch mechanism being movable between an engaged position, at which said drive shaft is coupled to said drive pulley such that actuation of said motor effects movement of said drive pulley and resultant movement of the curved arm relative to said carrier, and a disengaged position, at which said drive shaft is uncoupled from said drive pulley so that the curved arm can be manually moved relative to said carrier by an operator; and

a clutch release mechanism for moving said clutch mechanism between its engaged and disengaged positions.

2. The drive system of claim 1, wherein said clutch mechanism includes a first, second, and third ring, said first ring being connected to said drive pulley, said second ring being connected to said drive shaft, and said third ring being connected to said clutch release mechanism, said clutch release being positioned in said engaged

position such that said third ring engages said second ring in order that said first and second ring are engaged to interconnect said drive shaft and said drive pulley.

3. The drive system of claim 1, wherein said clutch mechanism includes a first, second, and third ring, said first ring being connected to said drive pulley, said second ring being connected to said drive shaft, and said third ring being connected to said clutch release, said clutch release being positioned in said disengaged position such that said third ring is pulled away from said second ring in order that said second ring is disengaged from said first ring and said drive pulley is disconnected from said drive shaft.

4. The drive system of claim 1, wherein said clutch release mechanism is connected to a clutch handle, said clutch handle being rotatable such that said clutch release mechanism is movable between said engaged position and said disengaged position.

5. The drive system of claim 1, wherein said clutch release mechanism includes a ramp and a clutch handle, said clutch release mechanism being positioned about a support block, said clutch handle being rotatable such that said clutch release mechanism is moved from said engaged position and said ramp engages said support block such that said clutch release mechanism is moved away from said drive pulley to said disengaged position to disengage said clutch mechanism and disconnect said drive pulley and drive shaft.

6. The drive system of claim 1, wherein said clutch mechanism includes first, second, and third rings, said first ring having detents, said second ring having holes with balls therein, and said third ring having a spring, said spring engaging said second ring when said clutch release mechanism is in said engagement position such that said balls extend into said detents and said holes in order that said first and second rings are connected.

7. The drive system of claim 1, wherein said clutch mechanism includes first, second, and third rings, said third ring being connected to said clutch release mechanism

by a securing ring, said third ring having a spring that engages said second ring such that said second ring is connected to said first ring when said clutch release mechanism is in said engaged position, said spring being moved away from said second ring when said clutch release mechanism is moved to said release position.

8. The drive system of claim 1, further including a tension spring that engages said clutch release mechanism such that said clutch release mechanism is maintained in said engaged position and automatically returns to said engaged position when said clutch release mechanism is released from said disengaged position.

9. The drive system of claim 1, further including a clutch stop that is configured to engage said clutch release mechanism in order to limit movement of said clutch release mechanism to between said engaged position and said disengaged position.

10. The drive system of claim 1, wherein said drive shaft is connected to a motor, said motor driving said drive shaft and said drive pulley when said clutch release mechanism is in said engaged position, said drive pulley being driven independently of said motor and drive shaft when said clutch release mechanism is in said disengaged position.

11. A drive system, comprising:
a curved arm;
a carrier that engages said curved arm;
a belt extending through said carrier and secured about the periphery of said curved arm; and

a driving system mounted to said carrier, said driving system including a drive pulley and a drive shaft that are both being engaged by a clutch mechanism, said driving system receiving said belt about said drive pulley, said driving system further including a clutch release that is movable between engaged and disengaged positions, in said engaged position, said clutch release is configured to engage said clutch mechanism such that said drive shaft is connected to said drive pulley and drives said belt in order that

said curved arm moves relative to said carrier, in said disengaged position, said clutch release is configured to disengage said clutch mechanism such that said drive shaft is disconnected from said drive pulley in order that said curved arm is moved with said drive pulley and said drive pulley moves relative to said drive shaft.

12. The drive system of claim 11, wherein said clutch mechanism includes a first, second, and third ring, said first ring being connected to said drive pulley, said second ring being connected to said drive shaft, and said third ring being connected to said clutch release, said clutch release being positioned in said engaged position such that said third ring engages said second ring in order that said first and second ring are engaged to interconnect said drive shaft and said drive pulley.

13. The drive system of claim 11, wherein said clutch mechanism includes a first, second, and third ring, said first ring being connected to said drive pulley, said second ring being connected to said drive shaft, and said third ring being connected to said clutch release, said clutch release being positioned in said disengaged position such that said third ring is pulled away from said second ring in order that said second ring is disengaged from said first ring and said drive pulley is disconnected from said drive shaft.

14. The drive system of claim 11, wherein said clutch release is connected to a clutch handle, said clutch handle being rotatable such that said clutch release is movable between said engaged position and said disengaged position.

15. The drive system of claim 11, wherein said clutch release includes a ramp and a clutch handle, said clutch release being positioned about a support block, said clutch handle being rotatable such that said clutch release is moved from said engaged position and said ramp engages said support block such that said clutch release is moved away from said drive pulley to said disengaged position to disengage said clutch mechanism and disconnect said drive pulley and drive shaft.

16. The drive system of claim 11, wherein said clutch mechanism includes first, second, and third rings, said first ring having detents, said second ring having holes

with balls therein, and said third ring having a spring, said spring engaging said second ring when said clutch release is in said engaged position such that said balls extend into said detents and said holes in order that said first and second rings are connected.

17. The drive system of claim 11, wherein said clutch mechanism includes first, second, and third rings, said third ring being connected to said clutch release by a securing ring, said third ring having a spring that engages said second ring such that said second ring is connected to said first ring when said clutch release is in said engaged position, said spring being disengaged from said second ring when said clutch release is moved to said disengaged position.

18. The drive system of claim 11, further including a tension spring that engages said clutch release such that said clutch release is maintained in said engaged position and automatically returns to said engaged position when said clutch release is released from said disengaged position.

19. The drive system of claim 11, further including a clutch stop that is configured to engage said clutch release in order to limit movement of said clutch release to between said disengaged position and said engaged position.

20. The drive system of claim 11, wherein said drive shaft is connected to a motor, said motor driving said drive shaft and said drive pulley when said clutch release is in said engaged position, said drive pulley being driven independently of said motor and drive shaft when said clutch release is in said disengaged position.